

# Investigation 3

## Comparing and Scaling Rates

The following examples illustrate situations involving another strategy to compare numbers.

- My mom's car gets 45 miles per gallon on the expressway.
- We need two sandwiches for each person at the picnic.
- I earn \$3.50 per hour baby-sitting for my neighbor.
- The mystery meat label says 355 Calories per 6-ounce serving.
- My brother's top running rate is 8.5 kilometers per hour.

Each of these statements compares two different quantities. For example, one compares miles to gallons of gas. A comparison of two quantities measured in different units is a **rate**. You have used rates in earlier problems. For example, you used rates in finding pizza per person.

### Getting Ready for Problem 3.1

- What two quantities are being compared in the rate statements above?
- Which of the rate statements is different from the others?



## 3.1 Technology on Sale

Stores, catalogs, and Web sites often use rates in their ads. The ads sometimes give the costs for several items. You might see an offer like the one shown at the right.

### Calculators for School

Fraction: \$120 for 20  
Scientific: \$240 for 15  
Graphing: \$800 for 10



The listed prices are for orders of 10, 15, or 20 to figure the price for any number you want to purchase. One way to figure those prices is to build a *rate table*. A rate table is started below.

**Price of Calculators for Schools**

Number Purchased	1	2	3	4	5	10	15	20
Fraction	■	■	■	■	■	■	■	\$120
Scientific	■	■	■	■	■	■	\$240	■
Graphing	■	■	■	■	■	\$800	■	■

### Problem 3.1 Making and Using a Rate Table

Suppose you take orders over the phone for the calculator company. You should be quick with price quotes for orders of different sizes.

- A.** Build a rate table like the one above. Fill in prices for each type of calculator for orders of the sizes shown.

Use your rate table to answer Questions B–F.

- B.** How much does it cost to buy 53 fraction calculators? How much to buy 27 scientific calculators? How much to buy 9 graphing calculators?
- C.** How many fraction calculators can a school buy if it can spend \$390? What if the school can spend only \$84?
- D.** How many graphing calculators can a school buy if it can spend \$2,500? What if the school can spend only \$560?
- E.** What *arithmetic operation* (addition, subtraction, multiplication or division) do you use to find the cost per calculator?
- F.** Write an equation for each kind of calculator to show how to find the price for any number ordered.

**ACE** Homework starts on page 40.